

Kenneth Hurst Williams

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PROFESSIONAL PREPARATION

University of California, Berkeley	Geology	B.A., 1993
University of California, Berkeley	Geophysics	M.S., 2002
University of California, Berkeley	Environmental Science, Policy & Management	Ph.D., 2008

APPOINTMENTS

- 2009-present Geological Scientist, Earth Sciences Division, Lawrence Berkeley National Laboratory, CA.
1998-2009 Senior Scientific and Engineering Associate, Earth Sciences Division, Lawrence Berkeley National Laboratory, CA.
1993-1998 Research Technician, Earth Sciences Division, Lawrence Berkeley National Laboratory, CA.

HONORS AND AWARDS

- 2005 Outstanding Student Paper; Near Surface Geophysics Section of the American Geophysical Union, 2005 Joint Assembly, "Monitoring microbial chemotaxis and sulfate-reduction using the self-potential method"

PUBLICATIONS

M. J. Wilkins, N. C. VerBerkmoes, **K. H. Williams**, S. J. Callister, P. J. Mouser, H. Elifantz, A. L. N'Guessan, B. C. Thomas, C. D. Nicora, M. B. Shah, P. Abraham, M. S. Lipton, D. R. Lovley, R. L. Hettich, P. E. Long, and J. F. Banfield, Proteogenomic monitoring of *Geobacter* physiology during stimulated uranium bioremediation, *Appl. Environ. Microb.*, 75(20), 6591–6599, 2009.

K.H. Williams, A. Kemna, M. Wilkins, J. Druhan, E. Arntzen, L. N'Guessan, P. E. Long, S. S. Hubbard, and J. F. Banfield, Geophysical monitoring of coupled microbial and geochemical processes during stimulated subsurface bioremediation, *Environ. Sci. Technol.*, 43(17), 6717-6723, doi: 10.1021/es900855j, 2009.

S.J. Melton, H. Yu, **K.H. Williams**, S.A. Morris, P.E. Long and D.A. Blake, Field-based detection and monitoring of uranium in contaminated groundwater using two immunosensors, *Environ. Sci. Technol.*, 43(17), pp 6703–6709, doi: 10.1021/es9007239, 2009.

P.J. Mouser, A.L. N'Guessan, H. Elifantz, D.E. Holmes, **K.H. Williams**, M.J. Wilkins, P.E. Long, and D.R. Lovley, Influence of ammonium availability on expression of *nifD* and *amtB* genes during biostimulation of a U(VI) contaminated aquifer: implications for U(VI) removal and monitoring the metabolic state of *Geobacteraceae*, *Environ. Sci. Technol.*, 43(12), 4386–4392, doi: 10.1021/es8031055, 2009.

J. Chen, S.S. Hubbard, **K.H. Williams**, S. Pride, L. Li, and L. Slater, A state-space Bayesian framework for estimating biogeochemical transformations using time-lapse geophysical data, *Water Resour. Res.*, 45, W08420, doi:10.1029/2008WR007698, 2009.

A. Englert, S.S. Hubbard, **K.H. Williams**, L. Li, and C.I. Steefel, Feedbacks between hydrological heterogeneity and bioremediation induced biogeochemical transformations, *Environ. Sci. Technol.*, 43(14), 5197–5204, doi: 10.1021/es803367n, 2009.

L. Li, C.I. Steefel, **K.H. Williams**, and M.J. Wilkins, Mineral transformation and biomass accumulation during uranium bioremediation at Rifle, Colorado, *Environ. Sci. Technol., Environ. Sci. Technol.*, 2009, 43(14), 5429–5435, doi: 10.1021/es900016v, 2009.

Druhan, J.L., M.E. Conrad, **K.H. Williams**, L. N'Guessan, P.E. Long, and S.S. Hubbard, Sulfur isotopes as indicators of amended bacterial sulfate reduction processes influencing field scale uranium bioremediation, *Environ. Sci. Technol.*, 42(21), 7842-7849, doi: 7810.1021/es800414s, 2008.

S.J. Melton, H. Yu, M.F. Ali, **K.H. Williams**, M.J. Wilkins, P.E. Long, and D.A. Blake “Detection of hexavalent uranium with inline and field-portable immunosensors”, in *Uranium, Mining and Hydrogeology* (B.J. Merkel and A. Hasche-Berger, eds.) Springer-Verlag, Berlin, pp 27-36. ISBN: 978-3-540-87745-5, 2008.

B. Faybishenko, T.C. Hazen, P.E. Long, E.L. Brodie, M.E. Conrad, S.S. Hubbard, J.N. Christensen, D. Joyner, S.E. Borglin, R. Chakraborty, **K.H. Williams**, J.E. Peterson, J. Chen, S.T. Brown, T.K. Tokunaga, J. Wan, M. Firestone, D.R. Newcomer, C.T. Resch, K.J. Cantrell, A. Willett, and S. Koenigsberg, In Situ Long-Term Reductive Bioimmobilization of Cr(VI) in Groundwater Using Hydrogen Release Compound, *Environ. Sci. Technol.*, doi: 10.1021/es801383r, 2008.

S. Hubbard; **K. H. Williams**, M. Conrad, B. Faybishenko, J. Peterson, J. Chen, P. Long, and T. Hazen, Geophysical monitoring of hydrological and biogeochemical transformations associated with Cr(VI) bioremediation, *Environ. Sci. Technol.*, 42(10); 3757-3765, doi:10.1021/es071702s, 2008.

L. Slater, D. Ntarlagiannis, N. Yee, M. O'Brien, C. Zhang and **K. H. Williams**, Electrode voltages in the presence of sulfide: Implications for monitoring natural microbial activity, *Geophysics*, 73, doi:10.1190/1.2828977, 2008.

K.H. Williams, S.S. Hubbard, and J.F. Banfield, Galvanic interpretation of self-potential signals associated with microbial sulfate-reduction *J. Geophys. Res.*, 112, G03019, doi:03010.01029/02007JG000440, 2007.

D. Ntarlagiannis, **K.H. Williams**, L.D. Slater, and S.S. Hubbard, Low frequency electrical response to microbial induced sulfide precipitation, *J. Geophys. Res.*, 110, doi:10.1029/2005JG000024, G02009, 2006.

Chen, J., S. Hubbard, J. Peterson, **K. Williams**, M. Fienen, P. Jardine, and D. Watson, Development of a joint hydrogeophysical inversion approach and application to a contaminated fractured aquifer, *Water Resour. Res.*, 42, W06425, doi:10.1029/2005WR004694, 2006.

K.H. Williams, D. Ntarlagiannis, L.D. Slater, A. Dohnalkova, S.S. Hubbard, and J.F. Banfield, Geophysical imaging of stimulated microbial biomineralization, *Environ. Sci. Technol.*, 39(19), 7592-7600, doi:10.1021/es0504035, 2005.

Parsons, B., Swift, D.J.P., and **Williams, K.H.**, Quaternary facies assemblages and their bounding surfaces, Chesapeake Bay Mouth: an approach to mesoscale stratigraphic analysis, *Journal of Sedimentary Research*, 73(5), 672-690, 2003.

Hubbard, S., Chen, J., Peterson, J., Majer, E., **Williams, K.**, Swift, D., Mailloux, B., and Rubin, Y., Hydrogeological characterization of the D.O.E. bacterial transport site in Oyster Virginia using geophysical data, *Water Resources Research*, 37(10), 2431-2456, 2001.

Hubbard, S., Peterson, J., Majer, E., Zawislanski, P., Roberts, J., **Williams, K.H.**, and Wobber, F., Estimation of permeable pathways and water content using tomographic radar data, *The Leading Edge of Exploration*, 16(11), 1623-1628, 1997.

SYNERGISTIC ACTIVITIES

Pioneered development of active biogeophysical monitoring methods; developed a fundamental understanding of the influence of subsurface biogeochemical processes on geophysical properties and the development of new tools for non-invasive characterization of such processes; emphasis on the electrochemical interpretation of geophysical anomalies within the context of static or dynamic geochemical and mineralogical conditions; development of new tools/methodologies for monitoring the emplacement and/or efficacy of novel remediation strategies, such as slow-release nutrient sources and organic carbon compounds.

Extensive experience in geophysical data acquisition and interpretation with an emphasis on surface and borehole complex resistivity, ground penetrating radar, seismic, and borehole logging methods.

COLLABORATORS & OTHER AFFILIATIONS

Primary Collaborators

J.F. Banfield (University of California, Berkeley); D.R. Lovley (University of Massachusetts); L.D. Slater (Rutgers University); P.E. Long (Pacific Northwest National Laboratory); A. Kemna (University of Bonn); S.S. Hubbard (Lawrence Berkeley National Laboratory)